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Planning, Programming, Budgeting Systems (PPBS) provide a new approach to the optimum use of limited school system resources in improving the learning process. In conjunction with Management Information Systems (MIS), PPBS is a tool which school officials can use to communicate to taxpayers the necessity for current school programs and the manner in which tax dollars are being allocated. PPBS requires that general educational goals, based on perception of the needs of the community, be translated into specific, quantifiable objectives to be carried out in specified time periods. Programs for carrying out these objectives are then specified and compared for expected effectiveness and cost. Approved longrun and shortrun programs are budgeted and put into operation. The various program operations are evaluated by a previously established criterion for fulfillment of the specified objectives. To estimate, evaluate, and report on operating systems within the multiyear PPBS framework, certain MIS data are required. The five major categories of MIS data are pupil data, program data, personnel data, facilities data, and financial data. On the basis of this data the school administration makes its decisions regarding programs and budgets. (DE)

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Management Information Systems

PPBS AND MIS -

THEIR ROLE IN MANAGING EDUCATION

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PPBS AND MIS - THEIR ROLE IN MANAGING EDUCATION

In the years since the administration of education has become an accepted discipline, there has been little or no significant change in how we budget and manage the resources committed for education. Management tools developed for other governmental operations and for industry are now being retailored to meet the increasing problems of resource management in education. The purpose of this paper is to examine two of these tools, PPBS and MIS, and their relationship to each other.

Increasing public school expenditures have led to the search for ways to use more effectively and efficiently the available resources. Tax and manpower resources which are needed to support public services are clearly limited. Because public education has been called upon to solve economic as well as social problems, expenditures for education will continue to claim a significant share of the tax dollar. Since these expenditures are rising and available tax resources are being stretched, the public is demanding better justification of educational costs. The growing unrest among taxpayers is evidenced by the increasing failures of levy and bond issue elections, some causing the dramatic closing of schools.

For years, school administrators have done a poor job of trying to tell the story of budget needs to the public. No real effort has been made to talk about the cost of educational programs and the effectiveness of our processes and methods.

For years school officials have been able to report the transportation cost per pupil/mile, per bus, and per route. Similarly they know the costs of cleaning, heating, or maintaining a school building, feeding a child, or running an athletic program. However, very few can tell what it costs to raise a child's reading or computational skill to a higher level, nor can they say if more or less should

be spent to achieve this new level in a longer or shorter time, nor are they sure if they are communicating to the taxpayers these objectives in relation to costs.

Against this background, school officials are becoming more cognizant of the need for a more responsive and timely system which will effectively communicate the cost of educational outputs. They need a system which will allow for better decision-making, alternative selections, planning, and forecasting. PPBS--Planning, Programming, Budgeting System--appears capable of meeting these needs.

PPBS DEFINED

A Planning, Programming, Budgeting System (PPBS) is an integrated system that provides school executives with better information for planning educational programs and for making choices among the alternate ways in which funds can be allocated to achieve the school district's established objectives. It aids the decision-making process by identifying goals and objectives, the programs to reach these objectives, the methods of evaluating the programs, and the cost of operating them.

The analysis and evaluation which are central to the implementation of a Planning, Programming, Budgeting System require identification of the public school end-products. Analysis requires that activities be considered as they relate to each other. Therefore, the search for alternative ways of meeting defined objectives are considered through various combinations of personnel, facilities, and materials to bring about the desired educational product.

The important question routinely asked in the course of PPBS implementation is, "How much additionally would be gained by way of achieving the defined objective through spending more or less for the purpose?"

Within a PPBS, the familiar processes of program development and budgeting are explicitly combined. It is a system in the sense of centering on program goals, objectives, and evaluation.

The value of PPBS in education results not from the individual techniques that have been developed, but from the integration of them into a system and their procedural application to educational decision making.

PPBS CONCEPTS

In an educational setting, PPBS is based on three concepts:

(1) The existence in each school district of an analytic capability which carries out continuing in-depth analyses by reducing objectives and programs to quantifiable units so that these programs can be evaluated.

(2) The existence of a multi-year planning and programming process which uses an information system to present data in meaningful categories essential to the making of major decisions by school administrators; and

(3) The existence of a budgeting process which can take broad program decisions, translate them into more refined decisions in a budget context, and present the appropriate educational program and financial data for action by the superintendent of schools and the board of education.

PPBS ESSENTIALS

Further, PPBS in education must have the following four essentials:

(1) An output-oriented educational program structure which presents data on all of the operations and activities of the schools in categories which reflect the schools' goals and objectives;

(2) Analyses of possible alternative objectives of the schools and of the alternative programs for meeting these objectives. Many different techniques of analysis will be appropriate, but central to this step should be analyses in which alternative educational programs will be compared with respect to both their costs and their benefits;

(3) Adherence to a time cycle within which well considered information and recommendations will be produced when needed for decision making and for the development of the budget and educational program;

(4) Acceptance by line officials, with appropriate staff support, of responsibility for the establishment and effective use of the system.

PPBS PRODUCTS

The products of such a system in education will include:

(1) A comprehensive multi-year program and financial plan systematically updated;

(2) Analyses of program results related to objectives prepared annually and used in the budget preview; special studies in depth from time to time; and other information which will contribute to the annual budget process.

The overall system is designed to enable each school district to:

(1) Make available to board members and administrators more concrete and specific data relevant for their broad decisions;

(2) Spell out more concretely the objectives of educational programs;

(3) Analyze systematically and present for the board's and the superintendent's review and decision, possible alternative objectives and alternative educational programs to meet those objectives;

(4) Evaluate thoroughly and compare the benefits and costs of educational programs;

(5) Produce total, rather than partial, cost estimates of educational programs;

(6) Present on a multi-year basis the prospective costs and accomplishments of educational programs;

(7) Review objectives and conduct educational program analyses on a continuing, year-round basis, instead of on a crowded schedule to meet budget deadlines.

PPBS CYCLE

The schematic diagram, page 6, shows the PPB system cycle. Starting at the left side of the diagram, the elements are described below:

(1) The needs of the community must first be identified. These are the needs of the children, adults, business and industry, other governmental units, and all elements of the community.

(2) These needs must then be translated into goals. Goals are general statements of purpose or intent, they are not related to a specific period of time, and they are not quantifiable or measurable in any way other than a broad subjective review. These goals need to be arranged in hierarchical structures in order that they may be broken down into manageable units. A typical goal structure is shown on page 7.

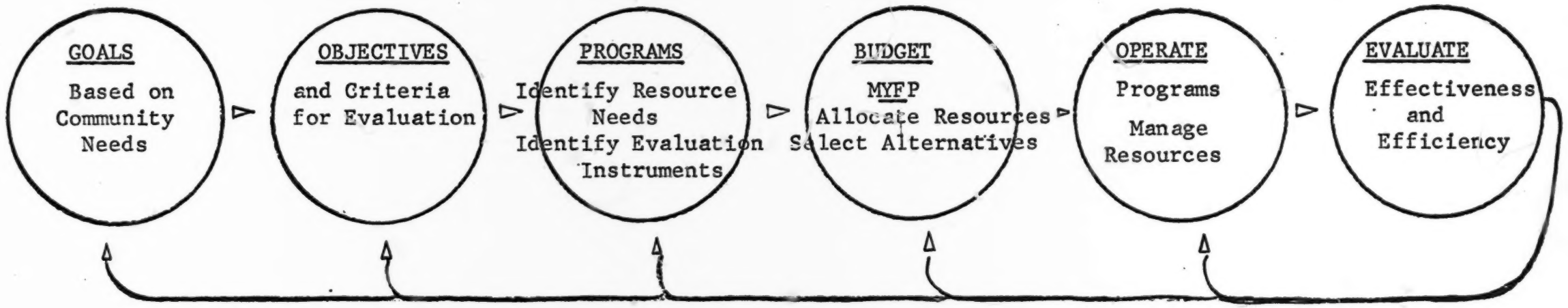
(3) Objectives, which are desired quantifiable accomplishments within a time framework must next be developed. These objectives must:

- Relate to a goal
- Be measurable
- State the method of measurement
- Indicate the evaluative criteria
- State the time period for achievement.

A typical objective structure is shown on page 8.

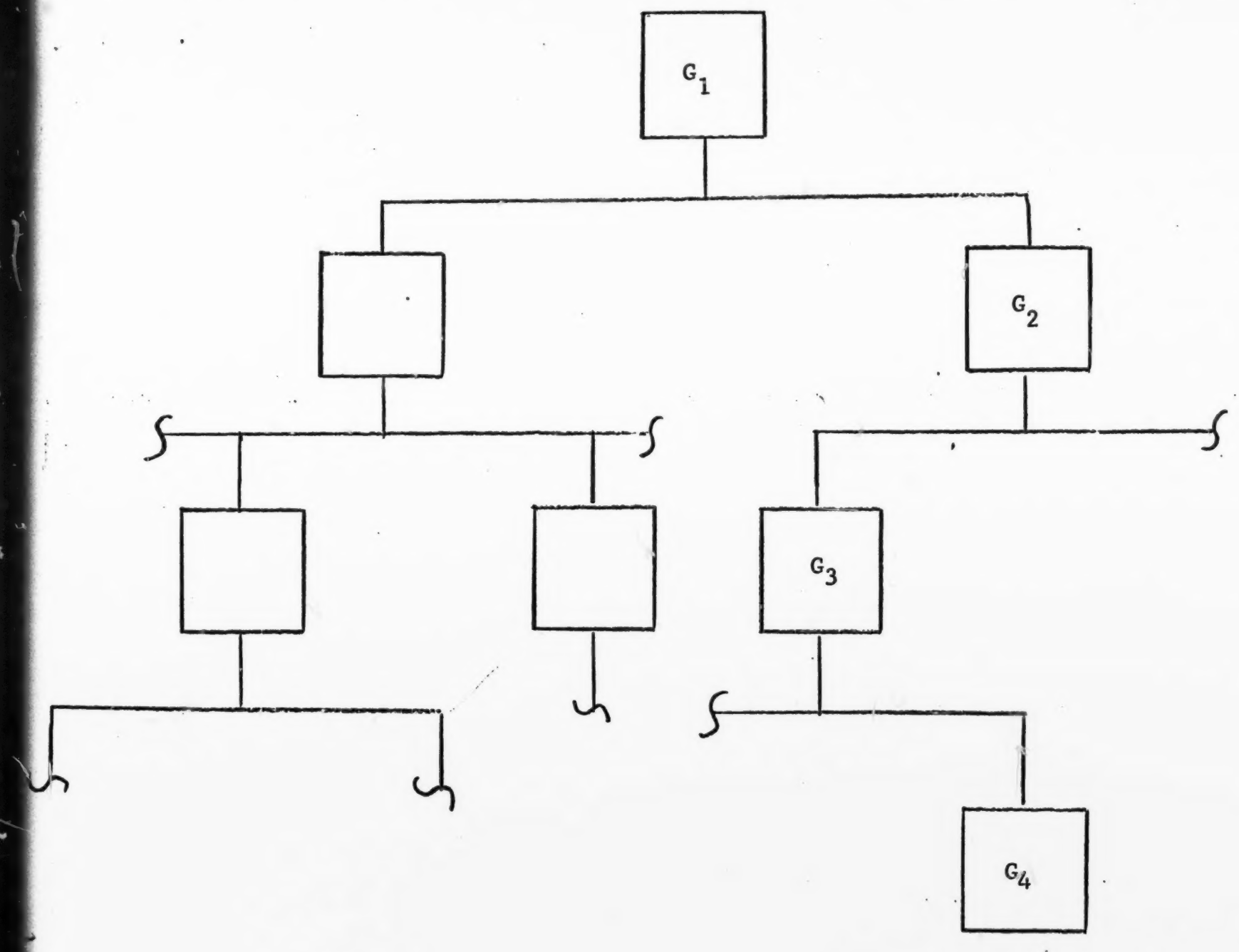
(4) When the goals and objectives have been developed, approved, and documented, it is necessary to develop programs to accomplish the objectives. In most school districts these programs already have been documented in the form of course outlines or curriculum guides and quite often include some objectives. At this point, the evaluative instruments which will be used to assess the program operation should be identified.

PPBS CYCLE



COMMUNITY NEEDS

Children
Parents
Governmental Units
Business
Industry



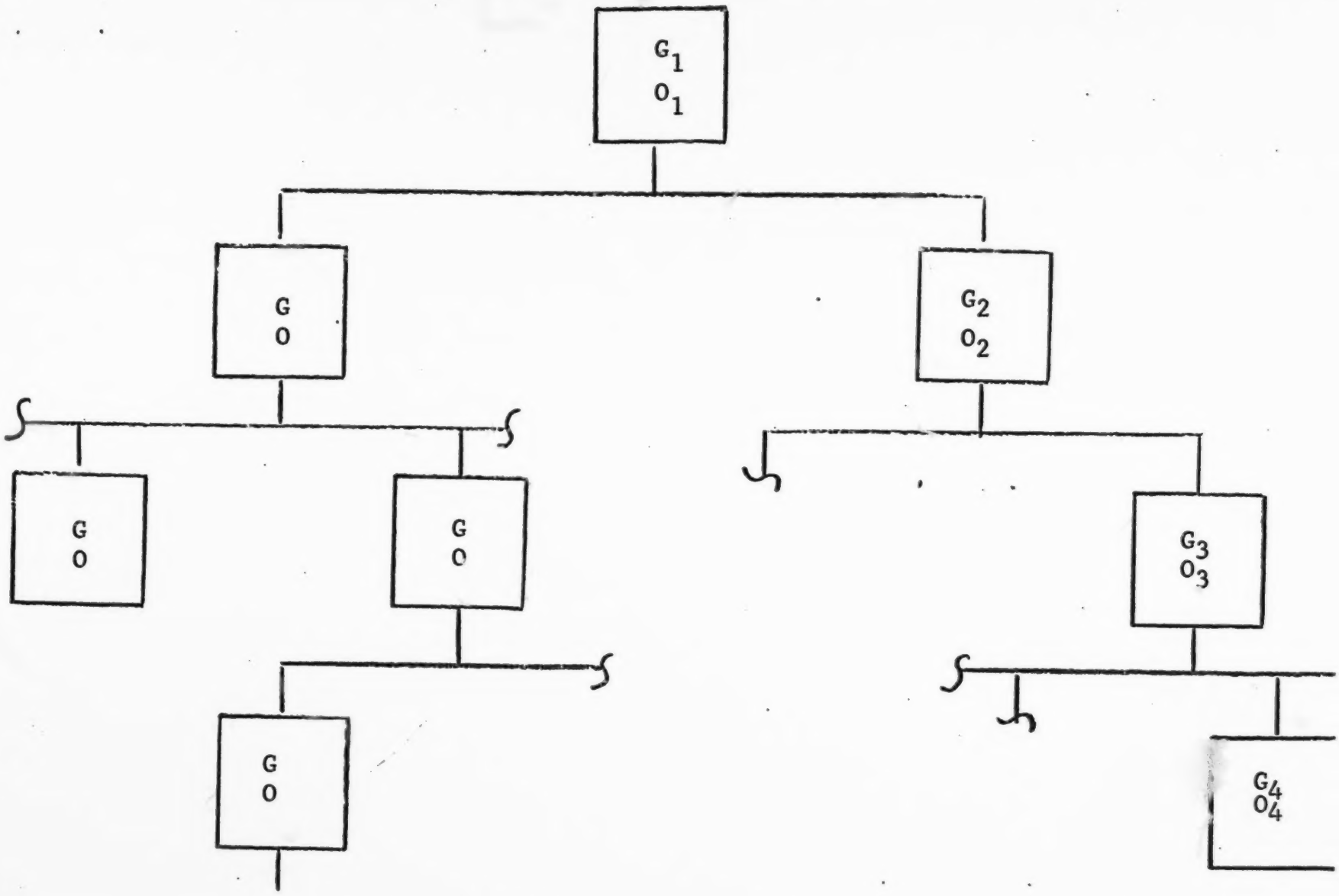
G_1 - To provide all students the opportunity to develop skills and characteristics enabling them to gain employment.

G_2 - To provide all students the opportunity to develop skills and characteristics in business, industrial arts, and agriculture.

G_3 - To provide all students the opportunity to develop skills and characteristics in typing, shorthand, bookkeeping, and office machine operation.

G_4 - To provide all students the opportunity to develop skills and characteristics in bookkeeping.

TYPICAL GOAL STRUCTURE



O_1 For ninety percent of the graduating seniors that wish to enter the labor force to gain employment in business within three months of graduation as measured by a district survey.

O_2 For ninety percent of graduating seniors that wish to enter the labor force gain employment as desired in business, industrial arts, and agriculture within three months of graduation as measured by a district survey.

O_3 For ninety percent of the business curriculum students to meet the following standards:

- Typing - 40 words per minute as measured by the IBM test with 90 percent accuracy
- Shorthand - 60 words per minute as measured by the Gregg test with a 2,000 word vocabulary
- Bookkeeping - deomonstrate understanding of journals, income statements, and balance sheets as determined by classroom tests
- Office Machine Operation - mean score equal to national average on NCR tests

O_4 Upon course completion ninety percent of students will be able to accomplish the following based on classroom tests:

- State and understand the basic accounting equation of double entry bookkeepi
- Understand the function of and make journal entries
- Understand three depreciation calculation methods

TYPICAL OBJECTIVE STRUCTURE

(5) The dollar figures must next be developed in the form of a budget for the approved programs. Not only the budget for the next year is prepared, but financial plans for a period of several years, usually five, are developed. This financial plan is termed a Multi-Year Financial Plan and is generally a significant departure from the current practice of developing budgets for only the following year. It is at this point that alternative budgeted programs are examined and selected based on the resources available.

(6) In the PPBS cycle the next activity is the actual operation of the programs and the management of the resources to implement them. These resources are, of course, the people, places, and things--the staff, buildings, supplies and equipment.

(7) The final step in the cycle is to evaluate the effectiveness of the program operations against the criteria established for the various program objectives. The process then recycles using the evaluation information to determine whether objectives were attained or were not attainable because of either program or resource limitation.

A PPB system is a constantly changing process. The initial effort to start up a system requires that all current programs and activities be subjected to this systematic analysis process. As ineffective programs and activities are purged from the system their replacements are subjected to the same process.

LARGE AND SMALL DISTRICT DATA NEEDS

The level of sophistication, or depth of detail, for the data developed in school districts would be determined primarily by two factors: (1) the size of the district, and (2) the progress made in background essentials for PPBS (e.g., goals, objectives determined, cost accounting system in effect).

The number of tasks required to convert current data to PPBS is dependent on the size of a district: the larger the district, the more tasks required. The larger districts would require development and documentation of more goals, objectives, criteria, and programs.

Where districts have made significant progress toward the development of an operational PPBS, the effort would be in the direction of adapting and improving what has been accomplished consistent with the designed system.

Where a district has not yet commenced a data system, significant effort will be required to develop and document (at even a gross level) goals and objectives, evaluation criteria, programs to perhaps one level, and to initiate a budget and cost accounting system.

Considering these factors, it is anticipated that the level of detail and sophistication of the PPBS will vary among school districts.

It should be noted here that the utilization of data processing equipment will greatly enhance a PPB system. The volume of data to be handled in a fully expanded PPBS is huge, and any method to speed up the processing of data and the development of management reports should be used.

However, it is equally important to point out that districts which are currently using manual or electric accounting machine systems can still accomplish the major steps for a PPBS. Goal identification, objective quantification, and evaluation criteria do not mandate data processing.

Costs can be kept by broader programs and levels. Many districts have done this for years without the aid of EDP. It may mean the expansion of the existing accounting system by the addition of more individual accounts, but many school districts have been regularly keeping detailed cost data on their operations.

MANAGEMENT INFORMATION SYSTEMS

The investigation of current information requirements and operating systems usually reveals varying degrees of detail in local school districts.

Five major categories of data must be developed in order to estimate, evaluate, and report within the multi-year framework of a PPB system. They pertain to (a) pupil, (b) programs, (c) personnel, (d) facilities, and (e) finances.

(a) Pupil Data

It has been pointed out that one of the major ingredients of PPBS is program evaluation. The criteria developed in each district to evaluate programs will vary and may include not only classroom test results, but other pupil statistics such as dropout rate, college entry rate, or return-to-school rate. The school districts implementing PPBS will find it necessary to record in a consistent format such statistics, and report these statistics in specific time frames and against specific programs. The districts should also be prepared to utilize these statistics in the preparation of new programs, as well as in the evaluation of current programs, and to maintain such statistics for long periods of time to develop behavior patterns, trend reports, and long-range program evaluations.

In the multi-year financial planning portions of PPBS, the districts will find it necessary to project pupil enrollment data, not only in number of students, but also in socio-economic changes within the community.

(b) Program Data

Goals, objectives, evaluation criteria, and program memoranda pertaining to each individual program operating in the school district must be recorded, stored, and reported for the successful operation of a school district PPBS. This is true for both the educational programs (i.e., math, English, social studies), as well as the special programs (counseling, career guidance and ancillary services, transportation, maintenance, custodial).

(c) Personnel Data

At least two major clusters of information on school district employees are required by a PPB system: payroll information and assignment information.

Within the PPBS framework, a district may choose to distribute the first grade teachers' pay to several different first grade programs, while charging all of the kindergarten teachers' salary to a single preschool program. For a high school Spanish teacher who works two periods a day as a counselor, who is also assigned as an assistant football coach three months of the school year, and teaches driver training on Saturdays, specific portions of this teacher's salary must be pro-rated to the Spanish program, the counseling program, the physical education program, and the driver training program. The recording of personnel assignments is a necessary part of PPBS.

(d) Facilities Data

The expenses involved in the operation of each school district facility must be recorded by specific facility in order to accommodate the information storage and reporting requirements of a PPB system. This will require the development of location and sublocation codes and the assignment of these codes to such items as inventory supplies, maintenance projects, and construction projects in the school district.

(e) Financial Data

In addition to the program-oriented budgeting and accounting, the traditional function-oriented budgeting and accounting should be maintained by responsibility levels (organizational units), fund, and functional areas as long as they are required. It should be emphasized that in order to preserve data comparability for State, Federal, and Local analyses by existing functions--such as Instruction, Administration, and Transportation--budgets can be cast in both ways, i.e., by line item within the function format and in a program format.

A caution should be inserted here to allay the fears of educators who are unfamiliar with school fiscal affairs. Accounting, enriched by its siblings of cost accounting and budgeting, is crucial for the successful operation of PPBS, but it is merely a tool of the organization, not the end. Educational decision makers must guard against forming conclusions about instructional activities solely on the basis of costs. Costs must be known better than they normally are in schools, but costs must be weighed against benefits and values held by citizens for the development of their children.

MANAGEMENT OF LOCAL SCHOOL SYSTEMS

PPB systems and management information systems must be designed for local educational agencies to first provide for good management of the resources and programs. Information as an output from these systems must, as mentioned earlier, allow for better decision making, planning, alternative selecting, and forecasting. Information for reporting to the State and Federal level should be an automatic by-product of these systems. As more and more States and the Federal Government move to adopt PPBS for managing at their respective levels, it would be desirable to have the information output from the local agencies be an automatic input to the higher levels.

CONCLUSION

PPBS provides a new approach to an old problem--that of better utilizing our limited resources in hope of improving the learning process.

School administrators hold one of the most demanding jobs in the nation. The selection of program alternatives is no less promising in its potential payoff at the school district level than at State and Federal levels, but to date, there is little application of PPBS among school districts throughout the nation. This

is caused by (1) the lack of specific knowledge of the PPBS, its associated techniques, and its potential rewards on the part of most school administrators and (2) the shortage of qualified analysts and selected personnel to design, implement, and operate successful PPB systems.

Although these deterrents force some administrators and boards of education to shy away from investigating PPBS, it is encouraging to see others pioneering with this new tool. Technical advisory help is now available to school districts that wish to venture. California is involved in the development of a model PPBS for all local districts of the State. Miami School System in Florida has a joint PPBS project with the Association of School Business Officials, and several individual school districts have initiated projects. Workshops and in-service programs are now possible for school officials desirous of knowing more about the tool.

If education is to hold a prioirty for expenditure of tax resources, and since the American taxpayer wants better justification of his tax dollar, school officials now have the opportunity to utilize PPBS, undergirded by an MIS, as a new decision-making tool to communicate more clearly the necessity for such expenditures and the manner in which the tax dollar is being spent.